

StorCase® Technology
Data Stacker®
DS60

External SCSI
Expansion Chassis
User's Guide

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Part No. D89-0000-0064 C03 December 2002



StorCase Technology, Inc.
17600 Newhope Street
Fountain Valley, CA 92708-9885
Phone (714) 438-1850 Fax (714) 438-1847

LIMITED WARRANTY

STORCASE TECHNOLOGY, Incorporated ("StorCase") warrants that its products will be free from defects in material and workmanship, subject to the conditions and limitations set forth below. StorCase will, at its option, either repair or replace any part of its product that proves defective by reason of improper workmanship or materials. Repair parts or replacement products will be provided by StorCase on an exchange basis, and will be either new or reconditioned to be functionally equivalent to new.

This warranty does not cover any product damage that results from accident, abuse, misuse, natural or personal disaster, external power surge or failure, or any unauthorized disassembly, repair or modification. StorCase will not be responsible for any software, firmware or other customer data stored within, or interfacing with a StorCase product.

Duration of Warranty

Seven-Year Warranty: The following StorCase products are covered by this warranty for a period of seven (7) years from the original date of purchase from StorCase or its authorized reseller: all Data Express® removable device enclosures and all StorCase interface cables and accessories specifically intended for use with these products. Data Silo®, Data Stacker® and InfoStation® products are covered by this warranty for a period of seven (7) years, excepting the RAID controller, power supply, fan and blower components, which are covered by the three-year warranty described below.

Three-Year Warranty: The following StorCase products are covered by this warranty for a period of three (3) years from the original date of purchase from StorCase or its authorized reseller: all Rhino®/JR external expansion chassis and all RAID controller modules. In addition, the following components of the Data Silo®, Data Stacker®, InfoStation® products are subject to warranty for a period of three (3) years: all power supplies, fans and blowers.

Warranty Claim Requirements

To obtain warranty service, the defective product must be returned to your local authorized StorCase dealer or distributor, or, with prior StorCase approval, to the StorCase factory service center.

For defective products returned directly to StorCase, a Return Material Authorization ("RMA") number must be obtained by calling StorCase Customer Service at (714) 445-3455. The RMA number must be prominently displayed on the outside of the return package. Shipments must be freight-prepaid and insured, and must include the product serial number, a detailed description of the problem experienced, and proof of the original retail purchase date. Products must be properly packaged to prevent damage in transit. Damage resulting from improper packaging will not be covered by this warranty. The StorCase factory service center is located at 17650 Newhope Street, Receiving Dock, Gate #4, Fountain Valley, CA 92780, U.S.A.

Free Technical Support

StorCase provides free technical support. If you experience any difficulty during the installation or subsequent use of a StorCase product, please contact StorCase's Technical Support Department prior to servicing your system. This warranty covers only repair or replacement of defective StorCase products, as described above. StorCase is not liable for, and does not cover under warranty, any costs associated with servicing and/or installation of StorCase products.

StorCase Technical Support can be reached in the U.S. at (714) 438-1858 or toll-free at (888) 435-5460 (U.S. and Canada only). StorCase European Technical Support can be reached in the U.K. at +44 (0) 1932 738900.

Disclaimers

The foregoing is the complete warranty for the products identified above and supersedes all other warranties and representations, whether oral or written. StorCase expressly disclaims all warranties for the identified products, which are not stated herein, including, to the extent permitted by applicable law, any implied warranty of merchantability or fitness for a particular purpose. In no event will StorCase be liable to the purchaser, or to any user of a StorCase product, for any damages, expenses, lost revenues, lost savings, lost profits, or any other incidental or consequential damages arising from the purchase, use or inability to use a StorCase product, even if StorCase has been advised of the possibility of such damages.



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Declaration of Conformity

Company Name: StorCase Technology, Inc.

Corporate Office Address: 17600 Newhope Street
Fountain Valley, CA 92708

Manufacturing Address: 17600 Newhope Street
Fountain Valley, CA 92708

Product Name: Data Stacker DS60

Model Number: DS60-SXXXXXX

Conforms to the following standards:

EMC Directives: EN 50081-1: 1992 Generic Emission
(89/336/EEC) - EN 55022/CISPR22 Class B
EN 50082-1: 1992 Generic Immunity
- IEC 1000-4-2 ESD
- IEC 1000-4-3 Radiated Immunity
- IEC 1000-4-4 Electrical Fast Transient

Low Voltage Directive: EN 60950
(73/23/EEC)

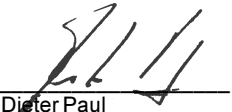
Safety Standards:
CSA (NRTL/C) CAN/CSA-C22.2 No. 950-93
UL 1950

TUV EN 60950: 1988 EN 60950/A2: 1991
EN 60950/A1: 1990

EMI Standards: FCC Part 15, Class B

EMC Standards: AS/NZS 3548 Information Technology Equipment

Year of Manufacture: 1998

Signature: 
Full name: Dieter Paul
Position: President

Federal Communications Commission (FCC) Statement

RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate that equipment.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Important Safety Instructions

1. Read all these instructions.
2. Save these instructions for later use.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
6. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risk. Refer all servicing to service personnel.

Wichtige Sicherheitshinweise

1. Diese Hinweise sollten vollständig durchgelesen werden.
2. Diese Hinweise für einen späteren Gebrauch aufbewahren.
3. Allen auf dem Gerät angebrachten Warnungen und Hinweisen folgen.
4. Das Gerät nicht in der Nähe von Wasser verwenden.
5. Das Gerät nur mit dem Aufkleber bezeichneten Netzspannung betreiben. Bei Fragen über die Art der Netzspannung sollte der Händler oder das Energieversorgungsunternehmen zu rate gezogen werden.
6. Nicht versuchen das Produkt selbst zu reparieren. In allen Produkten existieren gefährliche elektrische Spannungen. Nicht das Gehäuse öffnen.
7. Wartungsarbeiten nur von qualifiziertem Kundendienstpersonal ausführen lassen.

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NOTICE: This User's Guide is subject to periodic updates without notice. While reasonable efforts have been made to ensure the accuracy of this document, StorCase Technology, Inc. assumes no liability resulting from errors or omissions in this publication, or from the use of the information contained herein.

Please check the StorCase web site at <http://www.storcase.com> or contact your StorCase representative for the latest revision of this document.

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DATA STACKER® DS60 INTRODUCTION

Packaging Information

The StorCase Technology Data Stacker® external expansion chassis is shipped in a container designed to provide protection and prevent damage during shipment. The Data Stacker was carefully inspected before and during the packing procedure at the factory. Evidence of any damage to the Data Stacker should be reported to the shipper immediately.

If the wrong Data Stacker model has been received, please call your reseller or StorCase at (800) 435-0642 to arrange for a Return Material Authorization (RMA). StorCase cannot accept returns which do not display an RMA number on the outside of the package. Return the unit with all the original packing materials.

Before removing any component from its packaging, discharge any static electricity by touching a properly grounded metal object.

Serial Number

The Data Stacker is labeled with a serial number. This number must be reported to the StorCase Customer Service Representative in order to receive a Return Material Authorization (RMA) for warranty claims. Locate the serial number label and record the number in the space provided below.

Serial Number:

General Description

The StorCase Technology **Data Stacker DS60** family of stand-alone, stackable expansion chassis provides rugged and reliable housing for 3.5" half-height and low-profile (1" high) SCSI storage devices.

The Data Stacker DS60 consists of a modular chassis constructed of rugged steel and polycarbonate. Each chassis is equipped with an auto-ranging power supply, power-on and device activity LEDs, highly-rated cooling fan(s), and all necessary internal wiring and mounting hardware. Interchangeable front bezel(s) facilitate the mounting of either fixed hard drives or removable media devices.

The Data Stacker is available with either 50-pin Microminiature (HD50), 68-pin High Density, or 68-pin VHDCI (used for SCSI Ultra2 and Ultra160) connectors. Concealed, front mounted SCSI ID selection switch(es) provide easy unit ID selection. Fan speed selection is also accessible from the Data Stacker's front panel.

WARNING: The Data Stacker contains NO USER SERVICEABLE PARTS inside the unit.

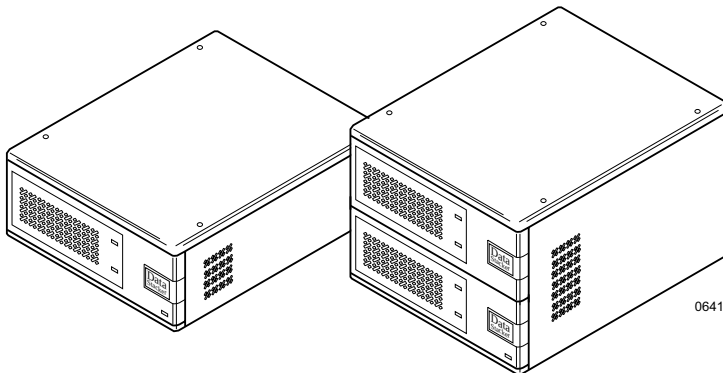


Figure 1: Data Stacker DS60

DS60 Front Panel

(See Figure 2)

- **Chassis Power LED** - Indicates that power is being supplied to the Data Stacker chassis.
- **Device Fault LED** - Indicates that the installed device has a fault. This LED is housed in the interchangeable drive bezel and provides connectors which can easily be attached to the installed drive(s) within the Data Stacker chassis.

Note: Some drives may not provide Device Fault LED connectors.

- **Device Activity LED** - Provides a visual indication of drive activity. This LED is housed in the interchangeable drive bezel and provides connectors which can easily be attached to the installed drive(s) within the Data Stacker chassis.
- **SCSI ID Select Switch** - Front mounted and concealed behind a small sliding door under the Data Stacker logo, this switch provides convenient SCSI ID selection. The rotating switch can be adjusted with the provided tool (refer to section "Selecting the SCSI ID Number" for additional information).
- **Fan Speed Selector Switch** - High and low speed. High speed (factory setting) is suitable for all drive capacities but is recommended for drives exceeding 4GB. Low speed may be used for removable media drives or drives with less than 4GB.
- **Interchangeable Bezel** - Accommodates removable media devices.

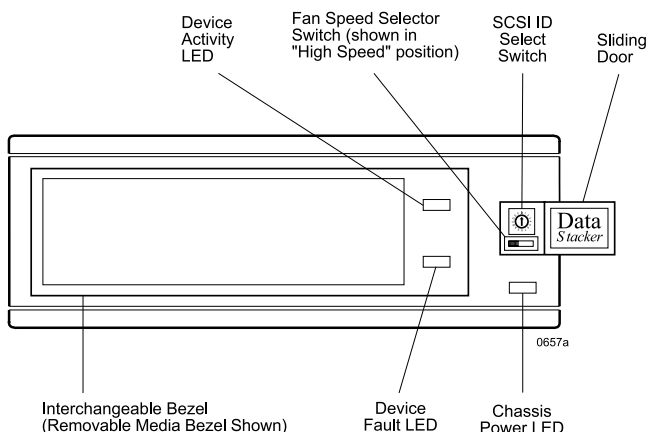


Figure 2: DS60 Front Panel

DS60 Rear Panel

(See Figure 3)

- **Power Switch** - Provides power to the Data Stacker chassis.
- **A/C Input Connector** - Accepts U.S. and other available international standard power cables (refer to Appendix C for more information).
- **A/C Output Connector** - For use when stacking multiple units. This connector will provide 6 amps to stacked DS60 chassis (refer to Appendices C and D for more information about stacking multiple units).
- **I/O Connectors** - The Data Stacker is available with either 50-pin MM (HD50), 68-pin HD, or 68-pin VHDCI (used for SCSI Ultra2 and Ultra160) connections.

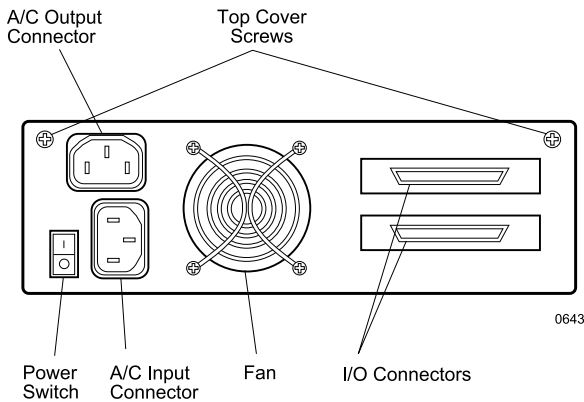
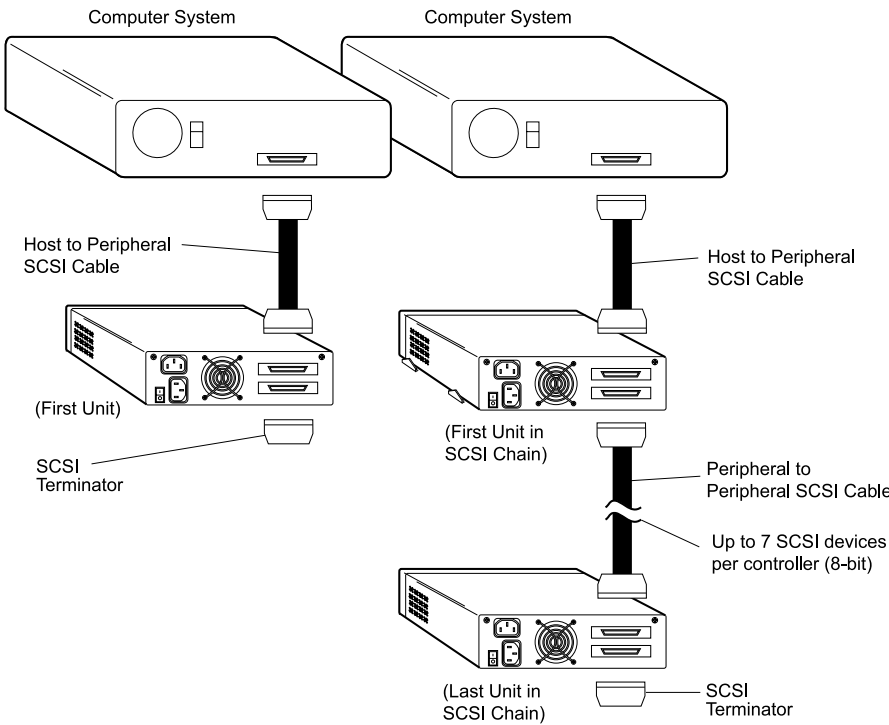


*Figure 3: DS60 Rear Panel
(DS60 1-Bay Shown)*

DS60 CONFIGURATION

Connecting the Data Stacker to the Computer System

If the DS60 is the last device in a SCSI daisy chain, it will require the appropriate termination (Figure 4). Contact StorCase for additional ordering information.



Unless otherwise noted, SYSTEM and PERIPHERAL connectors are always *female* while CABLE connectors and TERMINATORS are always *male*.

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Figure 4: Typical Daisy Chain Connections

Selecting the SCSI ID Number and Fan Speed

The SCSI ID is an address number (0 through 7 for 8-bit interface and 0 through 15 for 16-bit protocol) that is assigned to each SCSI device. In a SCSI daisy-chain, each device in the chain must have a unique SCSI ID number. SCSI ID 7 is usually reserved for the host controller. If the computer system is already equipped with internal or external SCSI storage devices, some ID numbers will already be reserved. For instance, if the computer system came with an internal SCSI hard drive, it may be designated as SCSI device 0 (refer to the computer system documentation for additional information).

The Data Stacker SCSI ID selection switch(es) is located on the front panel of the chassis enclosure, concealed behind a sliding door (Figure 5). The rotating switch can be adjusted with the provided alignment tool.

Carefully select the appropriate SCSI ID number(s) for the installed device(s). Note that some switch settings may be invalid for your interface type. Selecting an invalid ID number, or selecting the same number on different devices may cause unpredictable results and the computer system may not recognize the installed device(s). If the computer system can not recognize the boot disk, the computer system may fail to properly start-up.

NOTE: A small dip switch located below the rotating SCSI ID selection switch is provided for fan speed adjustment. The fan may be set for high or low speed.

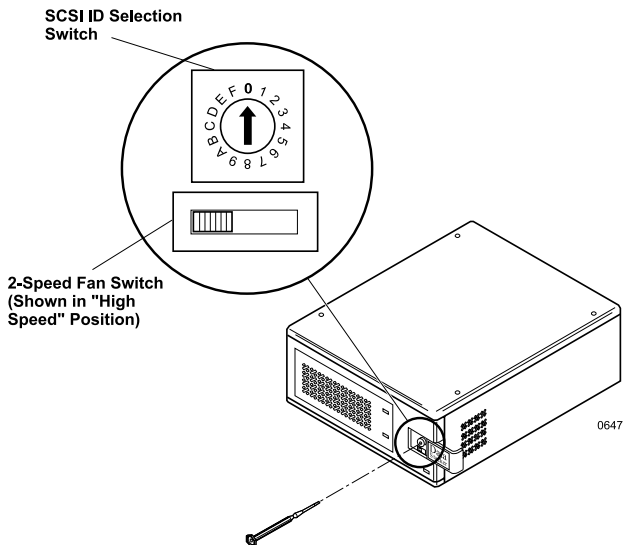
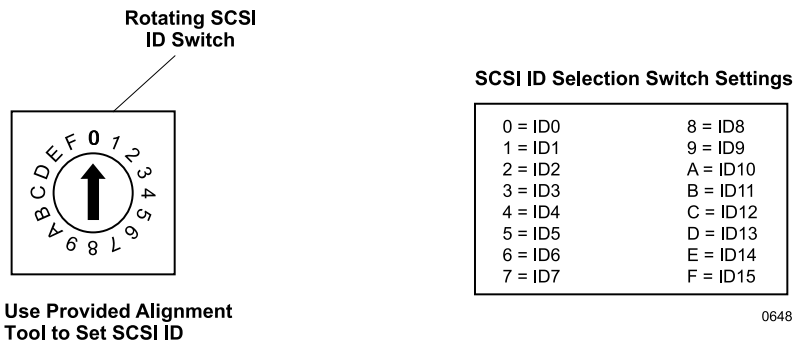


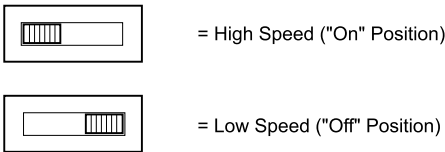
Figure 5: SCSI ID Selection Switch and Fan Speed Switch



Some SCSI unit ID numbers on the selection switch may be invalid for your interface type. Valid 8-bit ID numbers include 0-7. Valid 16-bit ID numbers include 0-15 (Do not use ID7. It is usually reserved for the host).

Figure 6: SCSI ID Selection Switch Settings

The Fan Speed Selector Switch has two settings- High and Low speed. High speed (factory setting) is suitable for all drive capacities but is recommended for drives exceeding 4GB. Low speed may be used for removable media drives or drives with less than 4GB.



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Figure 7: Fan Speed Switch

APPENDICES

Appendix A - Specifications/Dimensions

SCSI Data Stacker chassis conform to the Small Computer Systems Interface (SCSI) Standard set by the American National Standards Institute (ANSI).

Model Type	Weight
DS60 1-Bay	4.8lb (2.2kg)
DS60 2-Bay	7.6lb (3.4kg)

Environmental Specifications		
	Operating	Storage
Ambient Temperature	-5° C to 50° C	-45° C to 75° C
Relative Humidity ⁽¹⁾	10% to 80%	10% to 90%
Altitude	-1000 to 50,000 ft	-1000 to 50,000 ft
	-304m to 15240m	-304m to 15240m
Shock ⁽²⁾	10g	60g

⁽¹⁾Non-condensing with maximum Gradient of 10% per hour.

⁽²⁾11 msec Pulse Width 1/2 Sine Wave.

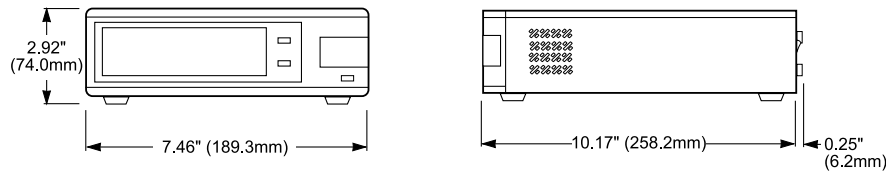
Physical Specifications	DS60 1-Bay	DS60 2-Bay
Height	2.92" (74.0mm)	5.39" (136.8mm)
Width	7.46" (189.3mm)	7.46" (189.3mm)
Depth	10.17" (258.2mm)	10.17" (258.2mm)
Drive Mounting Depth	7.0" (177.8mm)	7.0" (177.8mm)

Electrical Specifications				
	Input Voltage	Input Current Rating	Output (Continuous/Peak)	
1-Bay	100/240 VAC, 50-60Hz	1.5A maximum	40/65W	12V: 2/4A 5V: 3/4A
2-Bay		2.0A maximum	65/80W	12V: 4/8A 5V: 3.5/8A

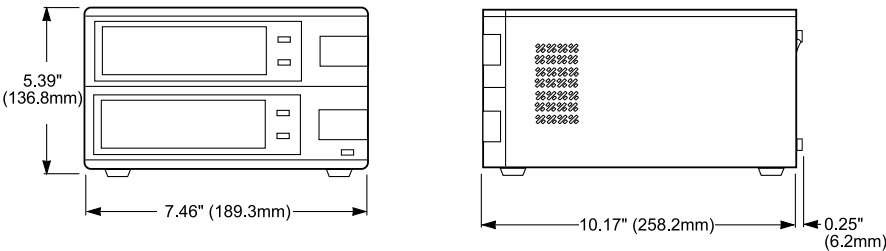
Chassis Reliability/Maintainability	
MTBF	500,000 Hours
MTTR	5 Minutes
Preventive Maintenance	None

Cooling Fan Air Flow	
Low	14 CFM
High	17 CFM

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Model DS60 1-Bay



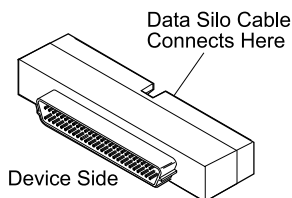
Model DS60 2-Bay

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*Figure A-1: DS60 Physical Dimensions
(Dimensions are for reference only)*

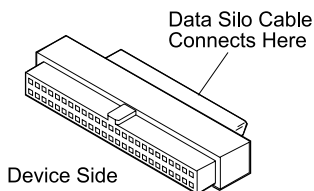
Appendix B - Drive Interface Adapter Options

StorCase provides several drive interface adapter options that permit various Data Stacker/ drive connector combinations. Contact StorCase for additional ordering information.



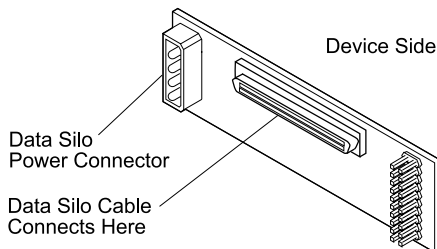
DX100-WTN

Adapts 16-bit, 68-pin SCSI Wide device to 8-bit, 50-pin SCSI Narrow cable connector.



DX100-NTW

Adapts 8-bit, 50-pin SCSI Narrow device to 16-bit, 68-pin SCSI Wide cable connector.



DX100-SWC

Adapts 16-bit, 68-pin SCSI Wide cable connector to Single Connect (SCA-2) drive interface connector (includes power, ID selection and device activity connections). Also supports Ultra2 and Ultra160 (LVD) interfaces.

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Figure B-1: Drive Interface Adapters

Appendix C - Optional Accessories

Stacking Cables

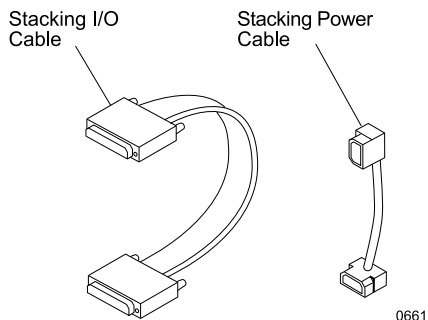


Figure C-1: DS60 Stacking Cables

The DS60 optional stacking cables are shown in Figure C-1. The power and I/O cables are shipped in a single package and are available for SCSI 2 (P/N DC60-SCSI2/PWR), SCSI 3 (P/N DC60-SCSI3/PWR), and Ultra2 or Ultra160 (P/N DC60-U2/PWR or DC60-160/PWR) interfaces.

NOTICE: For a complete and current listing of StorCase external cable, power cable, and terminator options that can be used with this product, please visit the StorCase web site at www.storcase.com.

Appendix D - Stacking Multiple Units

The DS60 chassis is designed so that multiple units may be safely stacked on top of one another. This can be accomplished by attaching the stacking feet between each Data Stacker chassis. Each foot is attached to the chassis with a small pin snugly inserted into a hole on the bottom of each chassis as shown in Figure D-1. The maximum number of units which may be stacked depends on the input current rating of each chassis. The maximum current drawn from the base unit must not exceed 6.0A (refer to the Input Current Rating in section "Appendix A - Specifications/Dimensions" for further information).

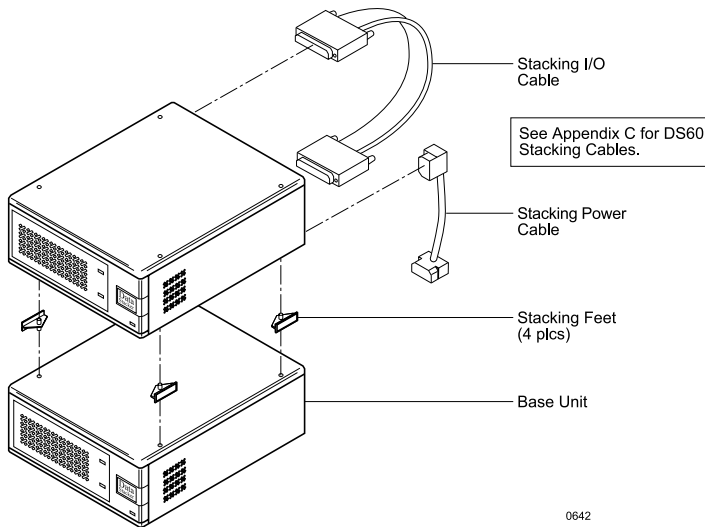


Figure D-1: Stacking Multiple Units

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Reader's Comments

Please take a few moments when your computer system is up and running to send us your ideas and suggestions for improving our products and documentation. Did the installation go smoothly for you? Are there any changes you would like us to make, either with the hardware itself, or with the installation instructions? Everyone at StorCase Technology is working toward the goal of providing you with the highest quality, most cost effective, products available on the market, and we need your comments to guide our efforts. We look forward to hearing from you soon!

Date: _____

Your Name: _____

Address: _____

Telephone: () _____

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